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PARK, EDWARD	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/791,868	SUGIMOTO, TASUKU	
	Examiner	**Art Unit**	
	EDWARD PARK	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _22 December 2008_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1,5-9,11-14 and 18-20_ is/are rejected.

7)☒ Claim(s) _2-4,10 and 15-17_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is responsive to applicant's amendment and remarks received on 12/22/08. Claims 1-20 are currently pending.

Specification

2. In response to applicant's amendment of the title, the previous title objection is withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1, 5-9, 11, 12, 13, 14, 18, 19, 20** are rejected under 35 U.S.C. 102(b) as being anticipated by Norimatsu (US 6,415,053 B1) and in view of Jayant et al (US 7,155,067 B2).

Regarding **claim 1**, Norimatsu discloses an image processing device for processing an original image including multiple pixels to create a new image, each of the multiple pixels having a pixel value, the device comprising:

an extracting unit extracting, from multiple pixel values of multiple pixels, an original pixel value of a pixel and pixel values of surrounding pixels that are positioned to surround the subject pixel, the subject pixel and the surrounding pixels being arranged in a matrix configuration (see fig. 10a1-8; col. 3, lines 63-67; col. 4, lines 1-12, pixel of interest and its surrounding pixels from pixel values of the pixel of interest and its surrounding pixels of image composed of the color image signals that are to be subjected to image processing);

a first calculating unit calculating a differential vector for the subject pixel by performing a differential operation on the pixel values of the surrounding pixels and calculating a vector magnitude of the differential vector and a vector direction of the differential vector (see col. 3, lines 63-67; col. 4, lines 1-12, calculating gradients representing directions and intensities of a pixel of interest and its surrounding pixels from pixel values of the pixel of interest and its surrounding pixels of image composed of the color image signals). Norimatsu does not disclose a second calculating unit calculating a new pixel value of the subject pixel based on the original pixel value of the subject pixel, a value determined dependently on the vector magnitude, and a pixel value of an adjustment pixel, the adjustment pixel being one of at least one first candidate surrounding pixel and at least one second candidate surrounding pixel, the at least one first candidate surrounding pixel being positioned in the vector direction, the at least one second candidate surrounding pixel being positioned in an opposite vector direction to the vector direction, the adjustment pixel having a pixel value closest to the original pixel value of the subject pixel among the at least one first candidate surrounding pixel and the at least one second candidate surrounding pixel; and a setting unit setting the new pixel value to the subject pixel, thereby obtaining a new image.

Jayant, in the same field of endeavor, teaches a second calculating unit calculating a new pixel value of the subject pixel based on the original pixel value of the subject pixel, a value determined dependently on the vector magnitude, and a pixel value of an adjustment pixel, the adjustment pixel being one of at least one first candidate surrounding pixel and at least one second candidate surrounding pixel, the at least one first candidate surrounding pixel being positioned in the vector direction, the at least one second candidate surrounding pixel being positioned in an opposite vector direction to the vector direction, the adjustment pixel having a pixel value closest to the original pixel value of the subject pixel among the at least one first candidate surrounding pixel and the at least one second candidate surrounding pixel (see fig. 13, col. 14, lines 1-26; image intensity of the surroundings pixels (e.g., luminance, chrominance) can be used to determine an appropriate smoothing of pixel x.sub.0; an image intensity median can be determined among the subject pixel and each surrounding adjacent pixel in each of the four directions identified in figure 13; z is determined by the formula z = median value of pixels in direction l where l=1, 2, 3, and 4; accordingly, the adjusted image intensity, x.sub.0', is the median of the maximum intensity found, the minimum intensity found, and the subject pixel's original intensity, x.sub.0); and a setting unit setting the new pixel value to the subject pixel, thereby obtaining a new image (see figure 13, col. 14, lines 1-26; accordingly, the adjusted image intensity, x.sub.0' is the median of the maximum intensity found, the minimum intensity found, and the subject pixel's original intensity, x.sub.0).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Norimatsu reference to utilize a second calculating unit by adjusting a subject pixel with a surrounding pixel as suggested by Jayant, to reduce SP noise in a manner

that is adaptive to the environment (i.e. background) in which the subject cell resides which filters the image for further improved edge detection and enhancement (see col. 14, lines 1-26).

Regarding **claim 5**, Norimatsu discloses performing the differential operation by using a Sobel filter (see col. 17, lines 35-51, Sobel operator).

Regarding **claim 6**, Norimatsu discloses performing the differential operation by using a Prewitt filter (see col. 17, lines 35-51 Prewitt operator).

Regarding **claim 7**, Norimatsu discloses subject pixel and the surrounding pixels are arranged in an n x n matrix configuration, where n is an odd number that is equal to or greater than three (see fig. 10a1-8; col. 17, lines 35-51, matrix that is 3x3 or 5x5).

Regarding **claim 8**, Norimatsu discloses subject pixel is a central pixel that is positioned at a center of the n x n matrix (see col. 17, lines 35-67).

Regarding **claim 9**, Norimatsu discloses n x n matrix is a 3 x 3 matrix (see fig. 10a1-8; col. 17, lines 35-51, matrix that is 3x3).

Regarding **claim 11**, Norimatsu discloses n x n matrix is a 5 x 5 matrix (see col. 17, lines 35-51, matrix that is 5x5).

Regarding **claim 12**, Norimatsu discloses an image forming unit forming the new image on a medium (see fig. 15, numeral 116M, 118; col. 26, lines 21-47, output the processed image data outside the apparatus as an image file such as a CD or laser printer unit 118).

Regarding **claim 13**, Norimatsu discloses an image processing device for processing an original image including multiple pixels to create a new image, each of the multiple pixels having a pixel value, the device comprising:

an extracting unit extracting, from multiple pixel values of multiple pixels, an original pixel value of a subject pixel and pixel values of surrounding pixels that are positioned to surround the subject pixel, the subject pixel. and the surrounding pixels being arranged in a 3x3 matrix configuration (see fig. 10a1-8; col. 3, lines 63-67; col. 4, lines 1-12, pixel of interest and its surrounding pixels from pixel values of the pixel of interest and its surrounding pixels of image composed of the color image signals that are to be subjected to image processing);

a first calculating unit calculating a differential vector for the subject pixel by performing a differential on the pixel values of the surrounding pixels and calculating a vector magnitude of the differential vector and a vector direction of the differential vector (see col. 3, lines 63-67; col. 4, lines 1-12, calculating gradients representing directions and intensities of a pixel of interest and its surrounding pixels from pixel values of the pixel of interest and its surrounding pixels of image composed of the color image signals).

Norimatsu does not disclose a second calculating unit calculating a new pixel value of the subject pixel based on the original pixel value the subject pixel, a value determined dependently on the vector magnitude, and a pixel value of an adjustment pixel, the adjustment pixel being one of a first candidate surrounding pixel positioned in the vector direction and a second candidate surrounding pixel positioned in an opposite vector direction opposite to the vector direction, the adjustment pixel having a pixel value closer to the original pixel value of the subject pixel than the other candidate surrounding pixel; and a setting unit setting the new pixel value to the subject pixel, thereby obtaining a new image.

Jayant, in the same field of endeavor, teaches a second calculating unit calculating a new pixel value of the subject pixel based on the original pixel value the subject pixel, a value

determined dependently on the vector magnitude, and a pixel value of an adjustment pixel, the adjustment pixel being one of a first candidate surrounding pixel positioned in the vector direction and a second candidate surrounding pixel positioned in an opposite vector direction opposite to the vector direction, the adjustment pixel having a pixel value closer to the original pixel value of the subject pixel than the other candidate surrounding pixel (see fig. 13, col. 14, lines 1-26; image intensity of the surroundings pixels (e.g., luminance, chrominance) can be used to determine an appropriate smoothing of pixel x.sub.0; an image intensity median can be determined among the subject pixel and each surrounding adjacent pixel in each of the four directions identified in figure 13; z is determined by the formula z = median value of pixels in direction l where l=1, 2, 3, and 4; accordingly, the adjusted image intensity, x.sub.0', is the median of the maximum intensity found, the minimum intensity found, and the subject pixel's original intensity, x.sub.0); and a setting unit setting the new pixel value to the subject pixel, thereby obtaining a new image (see figure 13, col. 14, lines 1-26; accordingly, the adjusted image intensity, x.sub.0' is the median of the maximum intensity found, the minimum intensity found, and the subject pixel's original intensity, x.sub.0).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Norimatsu reference to utilize a second calculating unit by adjusting a subject pixel with a surrounding pixel as suggested by Jayant, to reduce SP noise in a manner that is adaptive to the environment (i.e. background) in which the subject cell resides which filters the image for further improved edge detection and enhancement (see col. 14, lines 1-26).

Regarding **claim 14**, Norimatsu discloses an image processing method of processing an original image including multiple pixels to create a new image, each of the multiple pixels having a pixel value, the method comprising:

extracting, from multiple pixel values of multiple pixels, an original pixel value of a subject pixel and pixel values of surrounding pixels that are positioned to surround the subject pixel, the subject pixel and the surrounding pixels being arranged in a matrix configuration (see fig. 10a1-8; col. 3, lines 63-67; col. 4, lines 1-12, pixel of interest and its surrounding pixels from pixel values of the pixel of interest and its surrounding pixels of image composed of the color image signals that are to be subjected to image processing);

calculating a differential vector for the subject pixel by performing a differential operation on the pixel values of the surrounding pixels and calculating a vector magnitude of the differential vector and a vector direction of the differential vector (see col. 3, lines 63-67; col. 4, lines 1-12, calculating gradients representing directions and intensities of a pixel of interest and its surrounding pixels from pixel values of the pixel of interest and its surrounding pixels of image composed of the color image signals). Norimatsu does not disclose calculating a new pixel value of the subject pixel based on the original pixel value of the subject pixel, a value determined dependently on the vector magnitude, and a pixel value of an adjustment pixel, the adjustment pixel being one of at least one first candidate surrounding pixel and at least one second candidate surrounding pixel, the at least one first candidate surrounding pixel being positioned in the vector direction, the at least one second candidate surrounding pixel being positioned in an opposite vector direction opposite to the vector direction, the adjustment pixel having a pixel value closest to the original pixel value of the subject pixel among the at least one first candidate surrounding

pixel and the at least one second candidate surrounding pixel; and setting the new pixel value to the subject pixel, thereby obtaining a new image.

Jayant, in the same field of endeavor, teaches calculating a new pixel value of the subject pixel based on the original pixel value of the subject pixel, a value determined dependently on the vector magnitude, and a pixel value of an adjustment pixel, the adjustment pixel being one of at least one first candidate surrounding pixel and at least one second candidate surrounding pixel, the at least one first candidate surrounding pixel being positioned in the vector direction, the at least one second candidate surrounding pixel being positioned in an opposite vector direction opposite to the vector direction, the adjustment pixel having a pixel value closest to the original pixel value of the subject pixel among the at least one first candidate surrounding pixel and the at least one second candidate surrounding pixel (see fig. 13, col. 14, lines 1-26; image intensity of the surroundings pixels (e.g., luminance, chrominance) can be used to determine an appropriate smoothing of pixel x.sub.0; an image intensity median can be determined among the subject pixel and each surrounding adjacent pixel in each of the four directions identified in figure 13; z is determined by the formula z = median value of pixels in direction l where l=1, 2, 3, and 4; accordingly, the adjusted image intensity, x.sub.0', is the median of the maximum intensity found, the minimum intensity found, and the subject pixel's original intensity, x.sub.0); and setting the new pixel value to the subject pixel, thereby obtaining a new image (see figure 13, col. 14, lines 1-26; accordingly, the adjusted image intensity, x.sub.0' is the median of the maximum intensity found, the minimum intensity found, and the subject pixel's original intensity, x.sub.0).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Norimatsu reference to utilize a second calculating unit by adjusting a subject pixel with a surrounding pixel as suggested by Jayant, to reduce SP noise in a manner that is adaptive to the environment (i.e. background) in which the subject cell resides which filters the image for further improved edge detection and enhancement (see col. 14, lines 1-26).

Regarding **claim 18**, Norimatsu discloses performing the differential operation by using a Sobel filter (see col. 17, lines 35-51, Sobel operator).

Regarding **claim 19**, Norimatsu discloses performing the differential operation by using a Prewitt filter (see col. 17, lines 35-51 Prewitt operator).

Regarding **claim 20**, Norimatsu discloses a computer readable storage medium for storing a program (see col. 26, lines 21-33; image memory holds various image processing operations including corrections) of processing an original image including multiple pixels to create a new image, each of the multiple pixels having a pixel value, the program comprising the programs of:

extracting, from multiple pixel values of multiple pixels, an original pixel value of a subject pixel and pixel values of surrounding pixels that are positioned to surround the subject pixel, the subject pixel and the surrounding pixels being arranged in a matrix configuration (see fig. 10a1-8; col. 3, lines 63-67; col. 4, lines 1-12, pixel of interest and its surrounding pixels from pixel values of the pixel of interest and its surrounding pixels of image composed of the color image signals that are to be subjected to image processing);

calculating a differential vector for the subject by performing a differential operation on the pixel

values of the surrounding pixels and calculating a vector magnitude of the differential vector and a vector direction of the differential vector (see col. 3, lines 63-67; col. 4, lines 1-12, calculating gradients representing directions and intensities of a pixel of interest and its surrounding pixels from pixel values of the pixel of interest and its surrounding pixels of image composed of the color image signals). Norimatsu does not disclose calculating a new pixel value of the subject pixel based on the original pixel value of the subject pixel, a value determined dependently on the vector magnitude, and a pixel value of an adjustment pixel, the adjustment pixel being one of at least one first candidate surrounding pixel and at least one second candidate surrounding pixel, the at is least one first candidate surrounding pixel being positioned in the vector direction, the at least one second candidate surrounding pixel being positioned in an opposite vector direction opposite to the vector direction, the adjustment pixel having a pixel value closest to the original pixel value of the subject pixel among the at least one first candidate surrounding pixel and the at least one second candidate surrounding pixel; and

setting the new pixel value to the subject pixel, thereby obtaining a new image.

Jayant, in the same field of endeavor, teaches calculating a new pixel value of the subject pixel based on the original pixel value of the subject pixel, a value determined dependently on the vector magnitude, and a pixel value of an adjustment pixel, the adjustment pixel being one of at least one first candidate surrounding pixel and at least one second candidate surrounding pixel, the at is least one first candidate surrounding pixel being positioned in the vector direction, the at least one second candidate surrounding pixel being positioned in an opposite vector direction opposite to the vector direction, the adjustment pixel having a pixel value closest to the original pixel value of the subject pixel among the at least one first candidate surrounding pixel and the at

least one second candidate surrounding pixel (see fig. 13, col. 14, lines 1-26; image intensity of the surroundings pixels (e.g., luminance, chrominance) can be used to determine an appropriate smoothing of pixel x.sub.0; an image intensity median can be determined among the subject pixel and each surrounding adjacent pixel in each of the four directions identified in figure 13; z is determined by the formula z = median value of pixels in direction l where l=1, 2, 3, and 4; accordingly, the adjusted image intensity, x.sub.0', is the median of the maximum intensity found, the minimum intensity found, and the subject pixel's original intensity, x.sub.0); and setting the new pixel value to the subject pixel, thereby obtaining a new image (see figure 13, col. 14, lines 1-26; accordingly, the adjusted image intensity, x.sub.0' is the median of the maximum intensity found, the minimum intensity found, and the subject pixel's original intensity, x.sub.0).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Norimatsu reference to utilize a second calculating unit by adjusting a subject pixel with a surrounding pixel as suggested by Jayant, to reduce SP noise in a manner that is adaptive to the environment (i.e. background) in which the subject cell resides which filters the image for further improved edge detection and enhancement (see col. 14, lines 1-26).

Allowable Subject Matter

5. Claims 2, 3, 4, 10, 15, 16, 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 2, 3, 4, none of the references of record alone or in combination suggest or fairly teach wherein the multiple pixels are arranged in an x-direction and a y-direction, wherein the subject pixel is located at a two dimensional location (i, j) that is x-direction and y-direction coordinates of the subject pixel, and wherein the second calculating unit calculates the new pixel value of the subject pixel based on an equation:
g(i, j) = f(i, j) + KT x (G - f(i, j)) where g(i, j) is the new pixel value of the subject pixel, f(i, j) is the original pixel value of the subject pixel, KT is the value determined dependently on the vector magnitude, and G is the pixel value of the adjustment pixel; wherein the value KT has a value satisfying an inequality 0 <= KT <= 1; and wherein the
second calculating unit includes: a comparing unit comparing the vector magnitude with at least one of a first threshold value and a second threshold value that is greater than the first threshold value; and a KT setting unit setting the value KT to a value of zero (0), when the vector magnitude is less than or equal to the first threshold value, thereby allowing the new pixel value g(i, j) to take a value that is the same as the original pixel value f(i, j), the KT setting unit setting the value KT to a value between zero (0) and one (I), when the vector magnitude is greater than the first threshold value and is less than or equal to the second threshold value, thereby allowing the new pixel value g(i, j) to take a value between the original pixel value f(i, j) and the pixel value of the adjustment pixel G, and the KT setting unit setting the value KT to a value of one (I), when the vector magnitude is greater than the second threshold value, thereby allowing the new pixel value g(i, j) to take a value that is the same as the pixel value of the adjustment pixel G.

Regarding claim 10, none of the references of record alone or in combination suggest or fairly teach wherein the multiple pixels are arranged in an x-direction and y-direction, i and j being respectively x-direction and y-direction coordinates of the subject pixel, wherein the differential vector has an x-directional component H (i , j) and a y-directional component V (i , j) expressed by equations:

H (i , j) = -1 x f(i-1, j-1) -2 x f(i-1, j) -1 x f(i-I, j + 1) + f(i+l, j-1) +2 f (i + l , j) + f (i+l, j+l), and

V (i , j) - -1 x f (i-1, 1-11 + f (i-1, j+l) -2 x f(i, j-1) +2 x f(i, j+l) -1 x f (i+l, j-1) + f(i+l, j+l),

where f (i-1, 1-1) , f (i-1, j), f (i-1, j+l) , f(i, j-1), f (i, 1) f (i+l, - 1 , f (i+l, j), and f (i+l, 1) are respectively the pixel values of the surrounding pixels that are located at two-dimensional locations (i-1, j-1) , (i-1, j), (i-1, j+l), (i, j-1), (i, j+l), (i+l, j-1), (i+l, j), and (i+l, j+l), wherein the vector magnitude of the differential vector is expressed by an equation: gs(i, j) = sqrt (H(i, j)^2 + V(i, j)^2), and wherein the vector direction of the differential vector is expressed by an equation: Alfa_gs (i, j) = tan (V(i, j)/ H(i, j))^-1.

Regarding claims 15, 16, 17, none of the references of record alone or in combination suggest or fairly teach wherein the multiple pixels are arranged in an x-direction and a y-direction, wherein the subject pixel is located at a two dimensional location (i, j) that is x-direction and y-direction coordinates of the subject pixel, and

wherein the step of calculating the new pixel value includes calculating the new pixel value of the subject pixel based on an equation: g(i, j) = f(i, j) + KT x (G - f(i, j)) where g(i, j) is the new pixel value of the subject pixel, f(i, j) is the original pixel value of the subject pixel, KT is the value determined dependently on the vector magnitude, and G is the pixel value of the adjustment pixel; wherein the value KT has a value satisfying an inequality 0 <= KT <= 1; and

wherein the step of calculating the new pixel value includes: comparing the vector magnitude with at least one of a first threshold value and

a second threshold value that is greater than the first threshold value; and setting the value KT to a value of zero (0), when the vector magnitude is less than or equal to the first threshold value, thereby allowing the new pixel value g(i, j) to take a value that is the same as the original pixel value f(i, j), setting the value KT to a value between zero (0) and one (I), when the vector magnitude is greater than the first threshold value and is less than or equal to the second threshold value, thereby allowing the new pixel value g(i, j) to take a value between the original pixel value f(i, j) and the pixel value of the adjustment pixel G, and setting the value KT to a value of one (I), when the vector magnitude is greater than the second threshold value, thereby allowing the new pixel value g(i, j) to take a value that is the same as the pixel value of the adjustment pixel G.

Response to Arguments

6. Applicant's arguments filed on 12/22/08, in regards to claims 1, 13, 14, and 20 have been fully considered but they are not persuasive. Applicant argues that the Norimatsu with Jayant combination does not teach a second calculating unit calculating a new pixel value …, the adjustment pixel being one of at least one first candidate surrounding pixel and at least one second candidate surrounding pixel, the at least one first candidate surrounding pixel being positioned in the vector direction, the at least one second candidate surrounding pixel being positioned in an opposite vector direction opposite to the vector direction, the adjust pixel having a pixel value closest to the original pixel value of the subject pixel among the at least one first

candidate surrounding pixel and the at least one second candidate surrounding pixel, and setting unit setting the new pixel value to the subject pixel, thereby obtaining a new image (see pg. 3, fourth paragraph – pg. 4). This argument is not considered persuasive since Jayant teaches the cited limitation within col. 13, lines 53-67, col. 14, lines 1-26, where an image intensity median (z) can be determined among the subject pixel and each surrounding, adjacent pixel in each of the four directions identified in figure 13; thus z, is determined by the formula: z = {median value of pixel in direction l}, where l = 1, 2, 3, and 4; the image intensity that will be assigned to the subject pixel is given by the formula: x.sub.0'=Median[max(z.sub.1), min(z.sub.1), x.sub.0] where x.sub.0' is the image intensity of pixel x.sub.0 following processing by the SP noise filter; and accordingly, the adjusted image intensity, x.sub.0', is the median of the maximum intensity found, the minimum intensity found, and the subject pixel's original intensity, x.sub.0. Examiner notes that the cited limitation meets the cited limitation and arguments presented by the applicant where a new pixel value is set based on an original pixel value of a subject pixel (the adjusted pixel value is based on x.sub.0, within the formula x.sub.0'=Median[max(z.sub.1), min(z.sub.1), x.sub.0]), vector magnitude of a differential vector (z, is determined by the formula: z = {median value of pixel in direction l}, where l = 1, 2, 3, and 4), and a pixel value of an adjustment pixel that is positioned in a vector direction of the directional vector (l = 1, 2, 3, and 4). Examiner further notes that the claim limitations does not state what is considered opposite vector direction in regards to the second candidate surrounding pixel and therefore any pixel that is opposite of any axis is considered positioned opposite of the vector direction.

Regarding claims 5-9, 11, 12, 18, and 19, applicant argues that the claims are allowable due to the dependency from claims 1, 13, 14, 20, respectively (see pg. 5, first paragraph). This

argument is not considered persuasive since claim 1 stands rejected and the argument and rejection of claim 1 can be seen above.

Applicant's arguments, see pg. 5, second paragraph – third paragraph, filed on 12/22/08, with respect to claims 2-4, 10, 15-17 have been fully considered and are persuasive. The rejection of claims 2-4, 10, 15-17 has been withdrawn.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWARD PARK whose telephone number is (571)270-1576. The examiner can normally be reached on M-F 10:30 - 20:00, (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Edward Park
Examiner
Art Unit 2624

/Edward Park/
Examiner, Art Unit 2624

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624